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APPLICATION NO.	FILING DATE	FIRST NAMED INVENTOR	ATTORNEY DOCKET NO.	CONFIRMATION NO.
10/791,099	03/01/2004	Eric Chen-Li Sheng	TRAN-P283	2474

7590 10/31/2006  
WAGNER, MURABITO & HAO LLP  
Third Floor  
Two North Market Street  
San Jose, CA 95113

EXAMINER	
SUN, XIUQIN	
ART UNIT	PAPER NUMBER
2863	

DATE MAILED: 10/31/2006

Please find below and/or attached an Office communication concerning this application or proceeding.

RU

<b>Office Action Summary</b>	<b>Application No.</b>		<b>Applicant(s)</b>	
	10/791,099		SHENG ET AL.	
	<b>Examiner</b>		<b>Art Unit</b>	
	Xiuqin Sun		2863	

-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --

#### Period for Reply

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTH(S) OR THIRTY (30) DAYS, WHICHEVER IS LONGER, FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133). Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

#### Status

- 1) ☒ Responsive to communication(s) filed on 28 August 2006.
- 2a) ☒ This action is **FINAL**.                      2b) ☐ This action is non-final.
- 3) ☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

#### Disposition of Claims

- 4) ☒ Claim(s) 1-33 is/are pending in the application.
- 4a) Of the above claim(s) \_\_\_\_\_ is/are withdrawn from consideration.
- 5) ☒ Claim(s) 1-14 and 19-33 is/are allowed.
- 6) ☒ Claim(s) 15-18 is/are rejected.
- 7) ☐ Claim(s) \_\_\_\_\_ is/are objected to.
- 8) ☐ Claim(s) \_\_\_\_\_ are subject to restriction and/or election requirement.

#### Application Papers

- 9) ☐ The specification is objected to by the Examiner.
- 10) ☒ The drawing(s) filed on 01 March 2004 is/are: a) ☒ accepted or b) ☐ objected to by the Examiner.  
Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).  
Replacement drawing sheet(s) including the correction is required if the drawing(s) is objected to. See 37 CFR 1.121(d).
- 11) ☐ The oath or declaration is objected to by the Examiner. Note the attached Office Action or form PTO-152.

#### Priority under 35 U.S.C. § 119

- 12) ☐ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).
- a) ☐ All    b) ☐ Some \*    c) ☐ None of:
1. ☐ Certified copies of the priority documents have been received.
  2. ☐ Certified copies of the priority documents have been received in Application No. \_\_\_\_\_.
  3. ☐ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).

\* See the attached detailed Office action for a list of the certified copies not received.

#### Attachment(s)

- |  |   |
|--|---|
| 1) <input type="checkbox"/> Notice of References Cited (PTO-892)                       | 4) <input type="checkbox"/> Interview Summary (PTO-413)           |
| 2) <input type="checkbox"/> Notice of Draftsperson's Patent Drawing Review (PTO-948)   | Paper No(s)/Mail Date. _____                                      |
| 3) <input checked="" type="checkbox"/> Information Disclosure Statement(s) (PTO/SB/08) | 5) <input type="checkbox"/> Notice of Informal Patent Application |
| Paper No(s)/Mail Date <u>08/17/2006</u>  | 6) <input type="checkbox"/> Other: _____                          |

## DETAILED ACTION

### *Claim Rejections - 35 USC § 102*

1. The following is a quotation of the appropriate paragraphs of 35 U.S.C. 102 that form the basis for the rejections under this section made in this Office action:

A person shall be entitled to a patent unless –

(e) the invention was described in (1) an application for patent, published under section 122(b), by another filed in the United States before the invention by the applicant for patent or (2) a patent granted on an application for patent by another filed in the United States before the invention by the applicant for patent, except that an international application filed under the treaty defined in section 351(a) shall have the effects for purposes of this subsection of an application filed in the United States only if the international application designated the United States and was published under Article 21(2) of such treaty in the English language.

2. Claim 15-18 are rejected under 35 U.S.C. 102(e) as being anticipated by Pullen et al. (U.S. Pub. No. 20050240844).

With respect to claim 15, Pullen et al. disclose a computer implemented method of determining a junction temperature of an integrated circuit, said method comprising: measuring an ambient temperature in a region proximate to said integrated circuit (sections 0069-0072); measuring electrical power utilized by said integrated circuit (section 0069-0072); accessing a thermal resistance value for said integrated circuit; and said thermal resistance value is accessed from a computer usable media (section 0073); and determining a junction temperature of said integrated circuit (sections 0069-0075).

With respect to claim 16, Pullen et al. further disclose: said determining comprises multiplying said thermal resistance value by said electrical power and adding said ambient temperature (section 0070).

With respect to claim 17, Pullen et al. further disclose: said measuring electrical power comprises measuring current to said integrated circuit (section 0094).

With respect to claim 18, Pullen et al. further disclose: said thermal resistance value is accessed from a computer usable media (section 0073).

***Allowable Subject Matter***

3. Claims 1-14 and 19-33 are allowed.

***Reasons for Allowance***

4. The following is a statement of reasons for the indication of allowable subject matter:

The primary reason for the allowance of claims 1-14 and 19-33 is the inclusion of claimed method step of: adjusting a body bias voltage of said integrated circuit under test to achieve a desired junction temperature of said integrated circuit under test. It is this limitation found in each of the claims, as it is claimed in the combination that has not been found, taught or suggested by the prior art of record, which makes these claims allowable over the prior art.

***Conclusion***

5. **THIS ACTION IS MADE FINAL.** Applicant is reminded of the extension of time policy as set forth in 37 CFR 1.136(a).

A shortened statutory period for reply to this final action is set to expire THREE

MONTHS from the mailing date of this action. In the event a first reply is filed within TWO MONTHS of the mailing date of this final action and the advisory action is not mailed until after the end of the THREE-MONTH shortened statutory period, then the shortened statutory period will expire on the date the advisory action is mailed, and any extension fee pursuant to 37 CFR 1.136(a) will be calculated from the mailing date of the advisory action. In no event, however, will the statutory period for reply expire later than SIX MONTHS from the mailing date of this final action.

***Prior Art Citations***

6. The prior art made of record and not relied upon is considered pertinent to applicant's disclosure.

1) Butler (U.S. Pub. No. 2004018867) is entitled "System for and method of assessing chip acceptability and increasing yield".

2) Fan (U.S. Pub. No. 20040083075) is entitled "Junction temperatures measurements in semiconductor chip package technology".

3) Ando (U.S. Pub. No. 2004011231) is entitled "Integrated circuits having post-silicon adjustment".

4) Cohen et al. (U.S. Pub. No. 20050088137) is entitled "Methods and apparatus for optimal voltage and frequency control of thermally limited systems".

***Response to Arguments***

7. Applicants' arguments filed 08/28/06 have been fully considered but they are not persuasive.

With respect to claim 15, Applicants argued that Pullen "fails to teach or fairly suggest 'a method of determining a junction temperature of an integrated circuit ... comprising measuring an ambient temperature in a region proximate to said integrated circuit' ", because "a temperature measurement by the taught thermal sense device on-board each IC fails to teach or fairly suggest "measuring an ambient temperature in a region proximate to said integrated circuit' ". This argument is not persuasive. The Examiner considers that Pullen's on-board sensor senses the temperature of each IC, not the ambient temperature ( $T_a$ ). The  $T_a$  is measured and/or controlled by a mechanism different from the sense device on-board each IC (see Pullen's claim 4). The  $T_a$  is then used to determine a junction temperature of the IC (see Pullen's Eq. 1 and claim 4).

For the same reason, Applicants' argument that "As Pullen teaches a process of determining a junction temperature that is limited to taking on-chip measurements, Pullen fails to teach or fairly suggest ..... as recited by Claim 15" is not persuasive.

Applicants further argued that "Pullen teaches determining a junction temperature by direct measurement, rather than by measuring other parameters". This argument is not persuasive. Pullen's Eq. 1 shows the dependence of a junction temperature ( $T_j$ ) on other parameters (e.g.,  $T_a$ ,  $P_d$ ). Pullen further teaches how to

determine  $T_j$  from the given values of the other parameters (see Pullen's Claim 4 for example).

In response to Applicants' arguments about claim 16, the Examiner's rejection set forth above in previous and current Office actions is maintained for the same reasons discussed above.

With respect to claims 17 and 18, Applicants' arguments are persuasive either. It is Examiner's position that, giving the claims the broadest reasonable interpretation, the Pullen's disclosure (sections 0073 and 0094) does teach the claimed invention recited in these claims. The rejections stand.

Applicants' argument regarding claims 1-14 and 19-33 are persuasive. Allowable subject matter recited in these claims is indicated in section 4 as set forth above in this Office action.

#### ***Contact Information***

8. Any inquiry concerning this communication or earlier communications from the examiner should be directed to Xiuqin Sun whose telephone number is (571)272-2280. The examiner can normally be reached on 6:30am-4:00pm.

If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, John Barlow can be reached on (571)272-2269. The fax phone number for the organization where this application or proceeding is assigned is 571-273-8300.

Art Unit: 2863

Information regarding the status of an application may be obtained from the Patent Application Information Retrieval (PAIR) system. Status information for published applications may be obtained from either Private PAIR or Public PAIR. Status information for unpublished applications is available through Private PAIR only. For more information about the PAIR system, see <http://pair-direct.uspto.gov>. Should you have questions on access to the Private PAIR system, contact the Electronic Business Center (EBC) at 866-217-9197 (toll-free). If you would like assistance from a USPTO Customer Service Representative or access to the automated information system, call 800-786-9199 (IN USA OR CANADA) or 571-272-1000.

XS

October 25, 2006

BRYAN BUI  
PRIMARY EXAMINER